APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,186	10/30/2003	Alex Melament	IL920030038US1	8171

7590   10/19/2006

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EXAMINER
CAMPOS, YAIMA

ART UNIT	PAPER NUMBER
2185	

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
	10/697,186	MELAMENT ET AL.
Office Action Summary	Examiner	Art Unit	
	Yaima Campos	2185	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>15 October 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-14* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   The examiner acknowledges the applicant's submission of the amendment dated

August 14, 2006. At this point no claims have been amended and claim 4 has been

cancelled. Thus, claims 1-3 and 5-14 are pending in the instant application.

I. REJECTIONS NOT BASED ON PRIOR ART

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

3.   **Claim 1-3 and 5-14** are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention.

4.   As per **claims 1-3 and 5-14**, these claims recite the terms "high reliability high

performance storage medium," "high reliability low performance storage medium," and

"low reliability high performance storage medium" which are relative terms which render

the claim indefinite. The terms "high reliability high performance storage medium,"

"high reliability low performance storage medium," and "low reliability high

performance storage medium," are not defined by the claim, the specification does not

provide a standard for ascertaining the requisite degree, and one of ordinary skill in the

art would not be reasonably apprised of the scope of the invention. Applicant's own

Specification *[discloses "the terms high and low should be relative to each other" (Page*

5, lines 10-10)]. According to the broadest reasonable interpretation of the claims, the

examiner interprets these terms to read – **storage medium**-- and have been treated as

such for the rest of this office action. Applicant might consider further defining these

terms within the scope of the claim language.

II. REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6.   **Claims 1, and 6-14** are rejected under 35 U.S.C. 102(e) as being anticipated by

Ohran (US 2004/0034752).

7.   As per **claims 1, 6 and 13-14**, Ohran discloses a method of storage management,

the method comprising:

"storing data on a high reliability high performance storage medium;" [**"data is**

periodically written to attached primary mass storage" (Page 8, Par. 0074; Figure

3)]

"backing up said data on a high reliability low performance storage medium;" [**data is**

mirrored/backed up to secondary mass storage system (Page 5, Par. 0048; Page 9,

Paragraph 0084; Figure 3) and is also copied to cache holding area (Page 8, Par.

0076; Page 9, Par. 0080 Figure 3)]

"and after said backing up, copying at least some of said data from said high reliability high performance storage medium to a low reliability high performance storage medium and freeing space occupied thereby on the high reliability high performance storage medium" **[Ohran discloses this concept as "cache holding area" and wherein updates are placed in cache holding area (Page 8, Par. 0076; Page 9, Par. 0080; Figure 3) and explains erasing updates in cache holding area after they have been copied/mirrored to secondary storage (Page 8, Par. 0082,)]**.

8.   As per **claims 7 and 8**, Ohran discloses the system of claim 6, **[See rejection to claim 6 above]** further comprising: "a storage policy sub-unit configured to determine when to backup data on said low performance high reliability storage medium" wherein "said storage policy sub-unit is also configured to determine when to transfer data from said high performance high reliability storage medium to said high performance low reliability storage medium" **[Ohran discloses this concept (Page 6, Par. 0053; Page 8, Par. 0070, 0072, 0075)]**.

9.   As per **claim 9**, Ohran discloses the system of claim 6, **[See rejection to claim 6 above]** wherein "said high performance low reliability storage medium is higher volume than said high performance high reliability storage medium" **[Ohran discloses this concept (Page 5, Par 52; Page 8, Par. 0071; Page 3, Par. 0027)]**.

10.   As per **claim 10**, Ohran discloses the system of claim 6, **[See rejection to claim 6 above]** wherein "said high reliability high performance storage medium is configured to have a mean time between failure which is at least ten times higher than a mean time between failure which said low reliability high performance storage medium is configured to have" **[Ohran discloses this concept as secondary storage is provided as**

a mirror of primary storage such that when primary storage fails, which is more

likely to fail than secondary storage, data can be efficiently recovered from

secondary storage (Page 2, Par. 0017-0018)].

11.   As per **claim 11**, Ohran discloses the system of claim 6, **[See rejection to claim 6**

above] wherein "said high reliability high performance storage medium is configured to

allow at least ten times as many random read/write/rewrite operations per unit of time as

said high reliability low performance storage medium is configured to allow" **[Ohran**

discloses this concept as "cache holding area can dramatically improve the

performance of accessing mirrored or archived data" (Page 3, Par. 0026)].

12.   As per **claim 12**, Ohran discloses the system of claim 6, **[See rejection to claim 6**

above] further comprising: "a third level of storage comprising at least one low

performance high reliability storage media disconnected from said high performance high

reliability medium" **[Ohran discloses this concept as "the lower band width**

requirement make the current invention more practical for use where a secondary

system is located remotely form the primary system" (Pages 4-5, Par. 0045)].

13.   Claims **2 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Ohran (US 2004/0034752) in view of Mizrachi et al. (US 2003/0033486).

14.   As per **claims 2 and 3**, Ohran discloses "the method of claim 1," **[See rejection**

to claim 1 above], but fails to disclose expressly that "data is classified according to

characteristics thereof and is backed up at a rate that is dependent on the respective

characteristics of said data" wherein "said data is backed up at a rate dependent on at

least one from a group including at least: an occupancy level of said high reliability high

performance storage, availability of back-up media and access to said high reliability low performance storage medium."

Mizrachi teaches a memory management method/system wherein "data is classified according to characteristics thereof and is backed up at a rate that is dependent on the respective characteristics of said data" wherein "said data is backed up at a rate dependent on at least one from a group including at least: an occupancy level of said high reliability high performance storage, availability of back-up media and access to said high reliability low performance storage medium." Mizrachi discloses this concept as ["a **method and apparatus for using estimated communication rates in a cache replacement algorithm" (Page2, paragraph 0017, lines 2-4), teaches that "a rate estimator, coupled to the mapper, dynamically determines relative rates of active connections. The rates are used to classify the connections as fast or slow" (Page2, paragraph 0018, lines 13-16) and also discloses that "partitioning the cache memory includes partitioning the cache memory into first and second areas of the cache memory" (Page3, paragraph 0073) and specifies the existence of "first and second cache memories, coupled to receive and hold context information from an external memory with respect to a plurality of tasks, each task activated by one or more activating events, so that the context information is available for access by a processor in performing the tasks" (Page3, paragraph 0029)].**

Ohran (US 2004/0034752) and Mizrachi et al. (US 2003/0033486) are analogous art because they are form the same field of endeavor of computer memory management.

At the time of the invention it would have been obvious to a person of ordinary

skill in the art to modify the backup storage system as taught by Ohran and further

classify and migrate data based on transfer rate information as taught by Mizrachi.

The motivation for doing so would have been because Mizrachi teaches that

["using a partitioned cache architecture based on rate estimation minimizes slow

external memory accesses by assuring that context information for faster connection

resides in fast internal memory" (Page3, paragraph 0024)].

Therefore, it would have been obvious to combine Mizrachi et al. (US

2003/0033486) with Ohran (US 2004/0034752) for the benefit of creating a memory

management system/method to obtain the invention as specified in claims 2-3.

15.   **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohran (US

2004/0034752).

16.   As per **claim 5**, Ohran discloses the method of claim 1, **[See rejection to claim 1**

above] but does not disclose expressly that "said data include medical images."

At the time of the invention, it would have been obvious to one of ordinary skill

in the art to "include medical images" in the data storage system as taught by Ohran. The

motivation for doing so would have been because Ohran discloses **["an advancement in**

the art to have a mirroring and archiving system that could ensure logical

consistency of the data protected. It would also represent an advancement in the art

to have a mirroring and archiving system that could function either locally or

remotely using a low bandwidth communication link" (Page 3, Par. 0021) and

explains the invention is not limited to the described embodiments (Page 11, Par.

0095)]. Therefore, the storage system as described by Ohran may be used to store and

backup/mirror any kind of data, even when this data comprises very large amounts of

data such as medical images.

III. CLOSING COMMENTS

Conclusion

a. STATUS OF CLAIMS IN THE APPLICATION

17.   The following is a summary of the treatment and status of all claims in the

application as recommended by M.P.E.P. 707.07(i):

a(1) CLAIMS REJECTED IN THE APPLICATION

18.   Per the instant office action, **claims 1-3 and 5-14** have received an action on the

merits and are subject of a non-final rejection.

a(2) CLAIMS NO LONGER IN THE APPLICATION

19.   Claim 4 was cancelled by the amendment dated August 14, 2006.

b. DIRECTION OF FUTURE CORRESPONDENCES

20.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Yaima Campos whose telephone number is (571) 272-

1232 and email address is Yaima.Campos@uspto.gov. The examiner can normally be

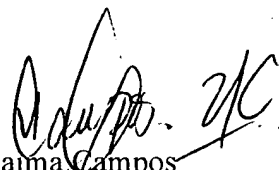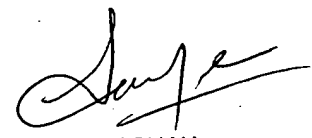reached on Monday to Friday 8:30 AM to 5:00 PM.

IMPORTANT NOTE

21.   If attempts to reach the above noted Examiner by telephone or email are

unsuccessful, the Examiner's supervisor, Mr. Sanjiv Shah, can be reached at the

following telephone number: Area Code (571) 272-4098.

The fax phone number for the organization where this application or proceeding is

assigned is 571-273-8300. Information regarding the status of an application may be

obtained from the Patent Application Information Retrieval (PAIR) system. Status

information for published applications may be obtained from either Private PAIR or

Public PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR system,

contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 14, 2006

Yaima Campos
Examiner
Art Unit 2185

SANJIV SHAH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100